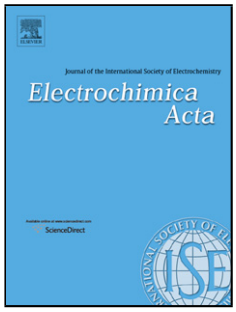

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Efficient Electrochemiluminescence from $Ru(bpy)_3^{2+}$ Enhanced by Three-Layer Porous Fe_3O_4@SnO_2@Au Nanoparticles for Label-Free and Sensitive Bioanalysis

Lin-Ru Hong, Jing Zhao, Yan-Mei Lei, Ruo Yuan, Ying Zhuo*

Key Laboratory of Luminescence and Real-Time Analytical Chemistry, Ministry of Education, College of Chemistry and Chemical Engineering, Southwest University, Chongqing 400715, China

Research highlights

► The three-layer porous Fe_3O_4@SnO_2@Au NPs was prepared not only as matrix with enlarge specific surface area but also as a novel co-reagent of $Ru(bpy)_3^{2+}$.

► A label-free and sensitive detection method was proposed in order to overcome existing problems in sandwich-type assay.

► The simple and sensitive "signal-on" aptasensor displayed a wide linear range response for TB with a low detection limit.

* Corresponding authors at: Tel.&fax: +86 23 68253172.
E-mail addresses: yingzhuo@swu.edu.cn(Y. Zhuo).